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ABSTRACT

To improve vocational educational programs in agriculture, occupational information on a common core of basic skills within the occupational area of the dairy farmer is presented in the revised task inventory survey. The purpose of the occupational survey was to identify a common core of basic skills which are performed and are essential for success in the occupation. Objectives were accomplished by constructing an initial task inventory to identify duty areas and task statements for the occupation. The initial task inventory was reviewed by consultants in the field, and 312 tasks were identified. A random sample of 74 dairy farmers based on the 1974-75 Ohio Young Farmers Association, Inc. was obtained. Data were collected utilizing a questionnaire. Forty-eight questionnaires were returned of which 43 were usable. A compilation of basic sample background information is presented on size and type of dairy operation, years as a dairy farmer, and preparation as a dairy farmer. A compilation of duty areas of work performed and work essential for the occupation is given. Percentage performance by incumbent workers and the average level of importance of specific task statements are presented in tabular form. (Author/EC)

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DETERMINATION OF A COMMON CORE
OF BASIC SKILLS IN AGRIBUSINESS
AND NATURAL RESOURCES

An Emperical Determination Of Tasks Essential To Successful Performance As A Dairy Farmer

DEPARTMENT OF AGRICULTURAL
EDUCATION
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AN EMPERICAL DETERMINATION OF TASKS ESSENTIAL TO SUCCESSFUL PERFORMANCE AS A DAIRY FARMER

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FOREWORD

The Department of Agricultural Education at The Ohio State University is involved in a major programmatic effort to improve the curricula in educational programs in agriculture. One product in this effort is this report of the dairy farmer task inventory survey. The data reported were collected as part of a more comprehensive thrust designed to develop a common core of basic skills in agribusiness and natural resources.

It is hoped that the revised task inventory contained in this report will be useful to curriculum developers working for improved occupational relevance in schools. Twenty-seven additional inventories in other occupational areas are also reported from this project.

The profession owes its thanks to J. Rick Byrd, graduate research associate, for his work in preparing this report. Special appreciation is also expressed to Richard Hummel, Executive Vice President and Treasurer of the Ohio Young Farmers Association and Area Supervisor for Vocational Education in Agriculture in Ohio, for his assistance in securing the cooperation of dairy farmers throughout Ohio.

J. David McCracken
Project Director

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INTRODUCTION

Occupational information is needed to develop and revise vocational and technical education curricula. Teachers and curriculum developers generally determine which skills might be taught in a program based upon teacher expertise, advisory committee input, informal and formal community surveys, and/or task inventories.

The Agricultural Education Department at The Ohio State University has utilized and revised a system for obtaining and using occupational information as an effective aid in planning, improving, and updating occupational education curricula. This report presents the results of a survey of the occupation, dairy farmer. The information contained herein may be used by curriculum development specialists, teachers, local and state administrators, and others involved in planning and conducting vocational and technical programs in agriculture.

Purpose and Objectives

The major purpose of the occupational survey was to identify the skills which are performed and essential for success as a dairy farmer. The specific objectives of this survey were as follows:

1. Develop and validate an initial task inventory for the dairy farmer.
2. Identify the specific tasks performed by dairy farmers.
3. Determine the relative importance of the specific tasks to successful employment as a dairy farmer.

Definition of the Occupational Area

The dairy farmer usually receives a major portion of his farm income from the dairy enterprise. The dairy farmer maintains a herd of milk cows and may or may not raise his own herd replacements. The specific duties he performs in relation to the dairy enterprise usually involve maintaining the herd health, formulating feeds and feeding the herd, milking the cows, selecting animals, managing the herd breeding program, sanitizing milking equipment, and marketing the milk through proper channels.

Because most dairy farmers operate farms where crops are raised, the operational management responsibilities of the dairy farmer include more than managing the milking herd. The dairy farmer is usually responsible for the planting, cultivating, harvesting, storing, and marketing of grain and forage crops. The dairy farmer also has a large investment in equipment and buildings and must manage that portion of the dairy farm business. The dairy farmer must operate equipment and machinery and maintain and repair such equipment. The dairy farmer also will be involved in minor building construction tasks and performs maintenance functions on the farm buildings and structures.

METHODOLOGY

Objectives were accomplished by constructing an initial task inventory, validating the initial inventory, selecting a sample of workers, collecting data, and analyzing data.

Initial Task Inventory

Duty areas and task statements for the dairy farmer were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally, contacts with several dairy specialists at Ohio State University aided in clarifying the specific responsibilities of the dairy farmer. All the tasks that the project staff thought to be performed were assembled into one composite list.

The initial tasks were grouped into functional areas called "Duties".

After the task statements were grouped under the proper duty areas, each task statement was reviewed for brevity, clarity, and consistency. In all 348 task statements were included in the initial task inventory.

Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by six dairy farmers.

The dairy farmers were asked to respond to the initial task list inventory by performing the following activities:

1. Indicate whether any of the tasks listed were not appropriate.

2. Add any additional tasks they believed were performed by the dairy farmer.

3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the six dairy farmers were pooled and needed revisions were made. Two new duty areas were developed as a result of the review process. The duty areas relating to the overall management of a dairy farm which were not unique to the dairy enterprise but common to several production agriculture occupations were removed from the dairy farmer questionnaire and incorporated into a separate farm manager (owner-operator) questionnaire.

As a result of the initial task inventory review process, 312 tasks were identified.

Worker Sample Selection

An attempt was made to survey dairy farmers from all areas of the state with various size dairy operations. A sample of 74 dairy farmers was obtained from the 1974-75 directory of the Ohio Young Farmers Association using a multi-stage random sampling approach. The stages used in the sampling approach were local Ohio Young Farmer Association chapter and individual member.

Data Collection

A packet of materials was sent to the randomly-selected dairy farmer. The packet of materials included:

1. A cover letter from the Ohio Young Farmers Association.
2. A questionnaire printed on yellow.
3. A stamped and self-addressed return envelope.

The dairy farmer was instructed to complete the questionnaire and return it in the stamped and self-addressed return envelope by the date specified in the cover letter.

A follow-up of non-respondents consisted of mailing a packet of materials two weeks after the initial mailing. The follow-up consisted of a packet of materials identical to the initial packet except that a cover letter on Ohio State University stationery replaced the cover letter on Ohio Young Farmer Association stationery.

Data Analysis

The 48 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 43 usable responses was coded on Fortran coding sheets for key punching. In addition to coding appropriate respondent background information, each specific task statement was coded as to whether it was performed (1 = Task performed by respondent; blank = Task not performed by respondent) and the level of importance of the task (3 = Essential; 2 = Useful; 1 = Not Important). The information was keypunched on IBM cards and verified by personnel at the Instruction and Research Computer Center at The Ohio State University.

The data was analyzed using the SOUPAC computer program and the facilities of the Instruction and Research Computer Center. Consultant assistance for analyzing the data was provided by personnel at The Center for Vocational Education. The SOUPAC computer

analysis resulted in the computation of relative frequencies, means, and rankings for each task statement. The results of the computer analyses were printed in tabular form for ease of interpretation.

FINDINGS

Objectives of the study resulted in the compilation of basic sample background information, the determination of tasks performed by the dairy farmer, and the identification of tasks essential to successful performance as a dairy farmer.

Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to be successful as a dairy farmer was obtained from dairy farmers across Ohio.

Response to the Survey

A total of 74 questionnaires were mailed and 48 replies were received. This represented a 64.9% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

DAIRY FARMER RESPONSE TO THE QUESTIONNAIRE

	N	Percent of All Farmers In the Survey
Dairy Farmers in Survey	74	100.0
Total Returns	48	64.9
Usable Returns	43	58.1
Unusable Returns	5	6.8
Nonrespondents	26	35.1

Size and Type of Dairy Operation

Dairy farmers from various size dairy operations were included in the study. The size of the herd on the dairy farm was used to assess the size of the dairy operation.

Of the 48 questionnaires received, 43 included information regarding size of the dairy operation. TABLES II and III summarize the responses to the question "How many milk cows, heifers, and calves do you have?" The size of the dairy milking herd ranged from 16-148 milk cows. The average milk cow herd size was 67.7. The number of replacement heifers and calves ranged from 10-210. The average number of heifers and calves was 62.1.

TABLE II

SIZE OF OPERATION
(Milk Cows)

Number of Milk Cows	N	Percent of Respondents
0-40	10	23.2
41-80	21	48.9
81-120	10	23.2
120 or more	2	4.7
Total	43	100.0

$\bar{X}$ number of milk cows = 67.7

TABLE III

SIZE OF OPERATION
(Heifers and Calves)

Number of Heifers and Calves	N	Percent of Respondents
0-40	16	37.2
41-50	16	37.2
51-120	9	20.9
121 or more	2	4.7
Total	43	100.0

$\bar{X}$ number of heifers and calves = 62.1

Years as a Dairy Farmer

Dairy farmers with varying amounts of experience in dairy farming were included in the study. TABLE IV summarizes the responses to the question, "How many total years have you been a dairy farmer?" Sixteen or 40% had been dairy farmers from 10-14 years. Ten or 25% had been dairy farmers 15-20 years. Nine or 22.5% had been dairy farmers from five to nine years. The range was 5-33 years with a mean of 13.5 years.

TABLE IV

TOTAL AMOUNT OF WORK EXPERIENCE IN DAIRY FARMING

Years	N	Percent of Respondents
5-9	9	22.5
10-14	16	40.0
15-20	10	25.0
21 or more	5	12.5
Total	40	100.0

$\bar{X}$ years as a dairy farmer = 13.5

Preparation as a Dairy Farmer

Dairy farmers obtained training for their occupation from various sources. TABLE V summarizes their responses to the question, "Where did you receive your preparation for farming?" Forty-three dairy farmers or 100% indicated they received training on-the-job. Twenty-eight dairy farmers or 70% indicated they attended a high school course to receive training as a dairy farmer. Twenty-four dairy farmers or 60% indicated they had received training as a dairy cattle farmer by attending adult education courses. Nine or 22.5% indicated they received training through a college/university program. Thirteen or 32.5% received training as a dairy farmer from other sources.

Duty Areas of Work Performed by the Dairy Farmer

The 312 tasks were grouped under 17 duty areas. Each respondent indicated whether he performed the specific task in his

TABLE V

SOURCE OF TRAINING RECEIVED AS A DAIRY FARMER

Source	N	Percent of All Farmers In Survey
On-The-Job	43	100.0
High School Program	28	70.0
College/University Program	9	22.5
Adult Education Program	24	60.0
Technical Program	2	5.0
Others	13	32.5

current position as a dairy farmer. The percentages of respondents performing each task were averaged for all tasks under each duty area. The mean percentage of dairy farmers who performed specific tasks in specified duty areas is presented in TABLE VI.

Duty areas of work in which 50% or more of the dairy farmers performed the tasks were:

1. Observing Legal Requirements in Dairy Operations
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Operating Equipment and Vehicles
6. Constructing and Maintaining Dairy Buildings and Structures
7. Assembling and Installing Dairy Operations Equipment
8. Maintaining Dairy Herd Health
9. Formulating Feeds and Feeding Dairy Cattle
10. Marketing and Shipping Dairy Products and Dairy Cattle
11. Selecting Breeding Cows and Replacement Stock
12. Breeding Cows and Heifers
13. Handling and Caring for Animals
14. Milking Cows
15. Sanitizing and Maintaining Milking Equipment
16. Handling and Disposing of Animal Wastes

Duty Areas of Work Essential for Successful Performance as a Dairy Farmer

A level of importance rating was obtained for each task. The respondent could rate the task as essential, useful, or

not important for successful performance as a dairy farmer. A ranking of essential was assigned a numerical rating of "3", useful a numerical rating of "2", and not important a numerical rating of "1". The level of importance ratings for each task were averaged for all tasks under each duty area. The average level of importance ratings for the specific tasks in the specified duty areas are presented in TABLE VI.

Duty areas of work which received a 2.0 or higher level of importance rating by incumbent workers were:

1. Observing Legal Requirements in Dairy Operations
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Operating Equipment and Vehicles
6. Constructing and Maintaining Dairy Buildings and Structures
7. Assembling and Installing Dairy Operations Equipment
8. Maintaining Dairy Herd Health
9. Formulating Feeds and Feeding Dairy Cattle
10. Marketing and Shipping Dairy Products and Dairy Cattle
11. Selecting Breeding Cows and Replacement Stock
12. Breeding Cows and Heifers
13. Handling and Caring for Animals
14. Milking Cows
15. Sanitizing and Maintaining Milking Equipment
16. Handling and Disposing of Animal Wastes

Percentage Performance and Level of Importance Ratings of Specific Tasks

The percentage performance by incumbent workers and the level of importance for each specific task is also presented in TABLE VI.

It is recommended that the results for each specific task be examined by educators and others who are developing educational programs to determine curriculum content for preparing dairy farmers. Specific tasks with a high level of performance and a high level of importance rating should be given more emphasis in the educational program than specific tasks with a low level of performance and a low level of importance rating.

TABLE VI

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE* OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Observing Legal Requirements in Dairy Operations		
Follow laws relating to chemical use	97	2.8
Interpret feed additive mixing regulations	79	2.6
Identify EPA regulations which apply to dairy operations	55	2.1
Interpret milk production standards	83	2.7
Mean Rating	78.5	2.6
Following General Safety Precautions		
Follow safe work habits	90	2.6
Identify potential safety hazards	79	2.6
Store chemicals	79	2.4
Use fire extinguishers	62	2.3
Wear appropriate protective clothing	46	2.2
Ventilate work areas	55	2.3
Interpret information on labels and signs	86	2.6
Use proper lifting and carrying methods	58	2.2
Store inflammable materials	72	2.3
Wear appropriate work clothes	83	2.2
Adjust safety devices	81	2.5
Install safety devices	65	2.2
Determine when climatic conditions provide unsafe work situations	51	2.0
Correct potential safety hazards	83	2.4
Remove debris from work areas	83	2.3
Use electrical connectors and safety devices	86	2.5
Dispose of chemical containers	86	2.3
Mean Rating	73.2	2.3
Maintaining Equipment and Vehicles		
Add coolant to radiators	100	2.9
Add oil to equipment	100	2.8
Adjust carburetors	67	2.3
Adjust clutch pedal free travel	79	2.6
Bleed diesel fuel system	76	2.5
Change oil and oil filters	100	2.8

*Average rating of importance may range from 1-3 with 3 being the highest

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Change thermostats	65	2.0
Clean debris from equipment	95	2.5
Grease equipment	100	2.9
Inflate tires	100	2.8
Inspect cooling system for leaks	88	2.6
Install and adjust belts	97	2.5
Install and adjust chains	100	2.6
Install and service battery	97	2.6
Interpret maintenance directions in operator's manuals	100	2.6
Remove equipment from storage	97	2.4
Repack bearings	90	2.5
Replace and adjust spark plugs	95	2.5
Replace bearings and seals	95	2.4
Replace diesel fuel nozzles	44	2.0
Replace spark plug wires	81	2.3
Replace radiator hoses	90	2.4
Replace universal joints	69	2.3
Service air cleaners	95	2.8
Service fuel strainer, fuel filters, and sediment bowl on gas fuel system	100	2.7
Time engines	39	2.1
Prepare equipment for storage	95	2.5
Install carburetor repair kit	39	2.0
Mean Rating	82	2.5
Using and Maintaining Hand and Power Tools		
Adjust tools	93	2.4
Clean tools	90	2.4
Identify tools	81	2.3
Interpret tool operation instructions	86	2.5
Recondition tools	65	2.0
Select tools for specific jobs	83	2.4
Sharpen tools	81	2.5
Store tools	93	2.5
Use hand tools safely	98	2.7
Use power tools safely	93	2.7
Set-up tools	72	2.1
Mean Rating	84.1	2.4

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Operating Equipment and Vehicles		
Interpret equipment gauge readings	97	2.8
Operate equipment and vehicles on public highways	93	2.8
Add wheel and front end weights	90	2.4
Adjust equipment safety shields	93	2.4
Connect front end operated equipment	69	2.3
Connect hydraulic systems and hydraulic operated equipment	97	2.7
Correct equipment safety hazards	83	2.6
Connect 3-point hitch equipment	93	2.6
Hitch towed equipment	83	2.4
Identify potential equipment safety hazards	83	2.5
Install safety shields and devices	81	2.5
Interpret hand operating signals	65	2.3
Interpret safety and operating instructions	93	2.6
Interpret safety symbols on equipment	88	2.6
Operate equipment under work conditions	95	2.7
Refuel power units	97	2.8
Use appropriate equipment and vehicles for specific jobs	90	2.5
Mean Rating	87.6	2.6
Constructing and Maintaining Dairy Buildings and Structures		
Apply wood and metal preservatives	79	2.3
Clean and oil electric motors on structures	86	2.5
Build and remove concrete forms	86	2.1
Determine cost of repairs	83	2.4
Develop bill of materials needed for repairs	72	2.3
Repair and hang gates and doors	100	2.4
Install electric motors	81	2.2
Lay blocks	53	1.8
Mix, pour, finish, and cure concrete	72	2.0
Read and interpret blueprints	41	1.8
Install and repair bracing in buildings and structures	72	2.2
Repair electrical cords and broken wires	95	2.7
Repair minor leaks in roof of buildings	100	2.5
Replace belts and pulleys	95	2.7
Reset circuit breakers	95	2.6

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Replace electrical switches	100	2.7
Replace fuses	90	2.6
Replace lighting fixtures	90	2.6
Install and replace valves in water system	81	2.3
Install and repair faucets	86	2.4
Replace water pipe	81	2.2
Replace window panes	90	2.1
Wire simple electrical circuit	88	2.3
Construct and repair fences and gates	97	2.6
Install and repair wood siding on buildings and structures	90	2.3
Repair metal structures with arc and oxy-acetylene welder	62	2.1
Mean Rating	83.3	2.3
Assembling and Installing Dairy Operations Equipment		
Adjust belts on equipment	97	2.7
Adjust chains on equipment	95	2.7
Adjust controls on equipment	95	2.6
Adjust safety shields on equipment	90	2.4
Check for missing equipment parts or hardware	83	2.6
Follow written assembly instructions	93	2.5
Identify hardware	81	2.3
Inspect equipment for operating defects	95	2.6
Install equipment in proper places	93	2.6
Interpret assembly diagrams	86	2.3
Interpret assembly instructions	79	2.3
Use proper equipment and tools to assemble and install equipment	88	2.3
Mean Rating	89.6	2.5
Maintaining Dairy Herd Health		
Evaluate influence health has on production	90	2.8
Identify common livestock internal and external parasites	83	2.5
Identify sanitation problems which may affect herd health	100	2.7
Identify symptoms of nutritional imbalance	90	2.8
Select materials to control internal and external parasites	88	2.5

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Work with veterinarians in developing herd health program	88	2.7
Disinfect and whitewash buildings and equipment	74	2.5
Select proper chemicals to clean buildings and equipment	86	2.5
Use insecticide repellents in buildings	83	2.5
Apply insecticides to cattle to control external parasites	90	2.7
Identify symptoms of common cattle diseases	93	2.7
Identify symptoms of major dairy cattle parasites	72	2.5
Evaluate life cycles of parasites to determine control procedures	58	2.1
Calculate cost of treatments	55	2.1
Supply medication through feed and water	62	2.3
Isolate animals with transmissible diseases	67	2.6
Select appropriate method to control diseases	79	2.6
Worm animals	72	2.2
Vaccinate animals	79	2.4
Determine amount of medication or materials needed in specific situations	81	2.6
Interpret labels on medications and insecticide containers	93	2.7
Give intra-muscular injections	88	2.7
Determine when to rotate pastures to control diseases and parasites	60	2.2
Observe new animals for symptoms of diseases and parasites	83	2.7
Determine when the veterinarian should be called	97	2.9
Apply medication to cuts and bruises	97	2.6
Identify and isolate injured animals	93	2.6
Blood test cows	53	2.1
Inspect udders for mastitis and bruises, cuts, and bumps	97	2.8
Place magnet in animals stomach	55	1.9
Mean Rating	80.2	2.5
Formulating Feeds and Feeding Dairy Cattle		
Develop rations	90	2.7
Calculate cost of rations and feed mixtures	90	2.7
Calculate feed efficiency	69	2.3
Classify feeds	60	2.3

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine amount of feed additives to add to mixtures	81	2.6
Determine amount to feed per animal	86	2.7
Determine appropriate form for preparing feed	65	2.3
Substitute for various feedstuffs in rations	58	2.0
Determine nutrient level requirements for animals	76	2.5
Determine purpose of various classes of feedstuffs in rations and mixtures	65	2.3
Determine why various nutrients are needed in rations and mixtures	58	2.3
Determine relative nutritive value of feedstuffs	74	2.4
Determine total amount of feed needed for herds	88	2.6
Determine water requirements for animals	67	2.3
Determine when additives should be withdrawn from animals	79	2.5
Determine when rations and mixtures should be changed	86	2.6
Determine which feeds and additives may be included in animal feed mixtures	79	2.4
Determine which feedstuffs and amount of feedstuffs may be substituted in rations	58	2.3
Evaluate the influence the quality of feedstuffs has on production	72	2.7
Evaluate how ration imbalance may affect production	69	2.4
Evaluate influence residues in milk have on marketing problems	65	2.6
Identify factors that influence feed requirements and feed efficiency	65	2.3
Identify factors that influence quality of feedstuffs	67	2.5
Determine purpose of various nutrients in rations and mixtures	65	2.3
Evaluate the influence the digestive system has on feedstuffs that may be fed	46	2.2
Interpret feed analysis reports	74	2.5
Interpret feed tags and labels	90	2.6
Interpret feeding charts and tables	76	2.3
Select appropriate feeding methods	90	2.4
Determine how feed palatability may be improved	65	2.3
Work with veterinarian and feed salesman in formulating feeds and planning feeding programs	79	2.5
Identify essential nutrients needed in rations and mixtures	69	2.3

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate how feed additives influence production and efficiency	62	2.2
Determine amount of weight animals should gain	41	2.1
Fill feed troughs and bunks	86	2.3
Fill and clean waterers	90	2.5
Prepare feed mixtures	81	2.5
Flush animals	18	1.5
Precondition animals for shipping	20	1.6
Evaluate influence of using pasture on feeding requirements	48	2.0
Wean animals	93	2.5
Precondition animals for feedlot	27	1.8
Evaluate affect of various feeding practices on carcass composition and feed efficiency	16	1.7
Prepare milk replacer solution for calves	79	2.4
Determine when calves may be started on grain and roughages	97	2.8
Lead feed producing cows	58	2.0
Determine when cows may be turned out to pasture	72	2.1
Precondition cattle before turning out to pasture	41	1.9
Determine when dairy cattle should be removed from pasture	69	2.1
Replace salt and mineral blocks	88	2.4
Calculate and feed rations for lactating cows	86	2.6
Calculate and feed rations for dry cows	62	2.3
Calculate and feed rations for cows just before and after calving	60	2.5
Calculate and feed rations for calves from weaning to six months of age	86	2.6
Calculate and feed ration for heifers from six months of age to freshening	79	2.4
Dry-off cows	95	2.6
Determine amount of milk or replacer to feed	95	2.7
Feed calves from buckets	83	2.2
Identify moldy or spoiled feedstuffs	88	2.5
Mean Rating	70.2	2.3
Marketing and Shipping Dairy Products and Dairy Cattle		
Calculate expected returns and profits on sales	79	2.4

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine feasibility of participating in futures market	41	1.8
Evaluate influence of market grade or class on returns	53	1.9
Load animals	93	2.3
Prepar> carriers for hauling animals	53	2.1
Select markets	81	2.5
Prepare advertising announcements for selling animals	20	1.9
Interpret market reports	67	2.4
Analyze market cycles	44	2.1
Select appropriate marketing system for mlik	46	2.1
Select truckers	53	2.0
Determine affect middlemen and retailers have on producers' prices	46	2.2
Determine whether animals should be held over for another year's income	79	2.4
Estimate market grades	37	1.9
Develop plan to spread marketing throughout year	51	2.2
Determine the affect milk substitutes have on prices and demands	30	2.0
Take pictures of animals for advertising announcements	.09	1.6
Determine when calves are ready to market	65	2.4
Determine number of animals to load on trucks	60	2.2
Consign outstanding individuals at sales	16	1.8
Determine base butterfat test	41	2.0
Compare milk hauling expenses of companies	37	1.9
Compare company base milk prices and differential prices for butterfat differences	55	2.1
Read measuring stick on bulk tank	95	2.7
Mean Rating	52.1	2.1
Selecting Breeding Cows and Replacement Stock		
Determine age of animals	95	2.6
Establish production goals for culling purposes	97	2.7
Evaluate advantages of various breeds	67	2.1
Evaluate general condition of animals	90	2.6
Evaluate overall performance and health records of animals	93	2.5

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate the degree various traits and characteristics are inherited	67	2.2
Identify parts of animals	81	2.1
Identify reputable sources for obtaining stock	74	2.4
Inspect animals for defects	76	2.6
Inspect animals for desirable traits and characteristics	81	2.6
Select breeding system to follow	90	2.7
Select foundation stock	67	2.3
Evaluate advantages of raising replacements vs. buying replacements	81	2.5
Identify breeds	76	2.0
Mean Rating	81.1	2.4
Breeding Cows and Heifers		
Determine due date for animals	95	2.9
Determine when to breed	93	2.9
Identify various causes of breeding difficulty	86	2.6
Select a breeding method	93	2.7
Pregnancy test animals	65	2.3
Store and prepare semen	48	2.2
Artificially inseminate animals	58	2.2
Mean Rating	76.9	2.5
Fitting and Showing Dairy Cattle		
Fit animals for show	34	1.8
Register animals for show	32	1.8
Show animals	32	1.6
Mean Rating	33	1.7
Handling and Caring for Animals		
Assist animals in delivering young	97	2.8
Castrate animals	62	2.3
Check animals milk supply	88	2.6
Clean newborn animals	79	2.4

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Dehorn animals	88	2.4
Determine space needed for animals	83	2.4
Disinfect and clip naval cord	60	2.3
Evaluate influence of stress on growth and condition of animals	46	2.1
Exercise animals	34	2.0
Help young to nurse	83	2.4
Identify signs of approaching birth	95	2.8
Identify due dates for animals	95	2.7
Isolate newly purchased animals for observation	46	2.2
Mark animals for identification	88	2.7
Move cows to calving pens	79	2.6
Move calves to nurse cows	37	1.8
Observe animals regularly	97	2.7
Pen animals according to size, weight, and sex	79	2.5
Remove afterbirth	76	2.4
Remove non-compatible animals	55	2.3
Trim hoofs	69	2.1
Weigh animals	20	1.5
Regulate air movement and temperature in housing for dairy cattle	55	2.3
House spring heifers with the milking herd	69	2.0
Restrain cows with ropes or hobbles	32	1.6
Move milking cows to holding pen or area	90	2.3
Clip dairy cattle	69	2.0
Determine length of dry period	93	2.5
Ring animals	34	1.5
Milk fresh cows by hand	34	1.4
Remove excess teats from heifers	55	2.1
Clean animals with brush or comb	25	1.4
Bed animals	100	2.7
Check udders on heifers and cows	100	2.7
Prevent animals from stampeding	60	2.0
Mean Rating	67.8	2.2
Milking Cows		
Adjust pulsator speed	65	2.4
Attach milker	100	2.8

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Check for abnormal milk	100	2.8
Determine when cow is finished milking	100	2.9
Determine when milk is ready for shipping	88	2.5
Dip teat cups in sanitizing solution	72	2.4
Establish and follow milking schedule	93	2.7
Evaluate influence pulsator speed has on milking of cow	53	2.1
Prevent "climbing" of milkers	55	2.2
Strip cows	62	2.0
Wash and dry udders	95	2.6
Mean Rating	80.3	2.5
Sanitizing and Maintaining Milking Equipment		
Adjust vacuum	88	2.7
Check freon in coolers	48	2.2
Clean pulsators	93	2.6
Remove milkstone	97	2.8
Replace inflations	100	2.9
Replace rings on milker heads	58	2.2
Replace teat cup liners	86	2.7
Select proper cleaning agents	100	2.7
Set automatic timers	62	2.1
Mean Rating	81.3	2.5
Handling and Disposing of Animal Wastes		
Evaluate how animal wastes decay	48	1.9
Prevent waste runoff from feedlots and housing quarters	79	2.4
Remove dead animals	95	2.9
Remove manure from pens and quarters	100	2.7
Spread manure on fields	97	2.7
Mean Rating	83.8	2.5